

What is claimed:

1. A system for managing state information related to an interactive application to accommodate one or more users participating in an interactive application session, wherein the state information comprises local state information specific to each of the one or more user's unique view of the interactive application and global state information, the system comprising:

a telecommunications network;

an application server in communication with said telecommunications network for managing the global state information relative to all of the users participating in the interactive application session; and

at least one mobile client device in communication with said application server over said telecommunications network for managing the local state information for each of the one or more users.

2. The system of Claim 1, wherein said telecommunications network comprises a wireless communications network, comprising at least one base station, at least one base station controller, and at least one mobile switching center.

3. The system of Claim 2, wherein said application server further comprises:

communication means for receiving the local state information from said at least one mobile client device;

a global modeler for comparing the received local state information with the global state information and updating the global state information;

a server state manager for structuring the updated global state information for optimized delivery over said wireless communications network; and

wherein said communication means delivers the updated global state information to said at least one mobile client device.

4. The system of Claim 3, wherein said application server further comprises synchronization means for time synchronizing the updated global state information delivered to said at least one mobile client device over said wireless communications network.
5. The system of Claim 4, wherein said synchronization means comprises a server system clock.
6. The system of Claim 3, wherein said server state manager structures the updated global state information based upon degrees of freedom associated with the interactive application.
7. The system of Claim 1, wherein said at least one mobile client device further comprises:
 - a local modeler for comparing the local state information to the global state information, wherein differences between the local state information and the global state information comprise changed state information;
 - a client state manager for structuring the changed state information for optimized delivery over said wireless communications network; and
 - communication means for delivering the changed state information to said application server over said wireless communications network.
8. The system of Claim 7, wherein said at least one mobile client device further comprises synchronization means for time synchronizing the changed state information delivered to said application server relative to the global state information.

9. The system of Claim 7, wherein said client state manager structures the changed state information based upon degrees of freedom associated with the interactive application.

10. An interactive application server for managing global state information related to an interactive application relative to local state information received from one or more mobile client devices over a wireless communications network during an interactive application session, comprising:

communication means for receiving the local state information from each of the one or more mobile client devices;

a global modeler for comparing the received local state information with the global state information and updating the global state information; and

a server state manager for structuring the updated global state information for optimized delivery over the wireless communications network.

11. The interactive application server of Claim 10, wherein said communication means delivers the updated global state information to each of the one or more mobile client devices.

12. The interactive application server of Claim 11, further comprising synchronization means for time synchronizing the updated global state information delivered to each of the one or more mobile client device over said wireless communications network.

13. The system of Claim 12, wherein said synchronization means comprises a server system clock.

14. The system of Claim 10, wherein said server state manager structures the updated global state information based upon degrees of freedom associated with the interactive application.

15. A mobile client device for managing local state information related to an interactive application relative to global state information maintained by an application server during an interactive application session between one or more users over a wireless communications network, comprising:

a local modeler for comparing the local state information to the global state information, wherein differences between the local state information and the global state information comprise changed state information;

a client state manager for structuring the changed state information for optimized delivery over the wireless communications network; and

communication means for delivering the changed state information to the application server over the wireless communications network.

16. The mobile client device of Claim 15, further comprising:

synchronization means for time synchronizing the changed state information delivered to the application server over the wireless communications network.

17. The mobile client device of Claim 15, wherein said client state manager structures the changed state information based upon degrees of freedom associated with the interactive application.

18. The mobile client device of Claim 15, further comprising:

memory means for storing the interactive application; and

input/output means for interfacing with the interactive application.

19. The mobile client device of Claim 18, wherein said memory means is selected from the group consisting of: a memory chip, a plug-in module, solid state memory, Sandisk memory media, and a memory stick.

20. A method for managing state information related to an interactive application to accommodate one or more users participating in an interactive application session, wherein the state information comprises local state information specific to each of one or more mobile client devices operated by the one or more users and global state information maintained at an application server, the method comprising:

comparing the local state information to the global state information at each of the mobile client devices, wherein differences between the local state information and the global state information comprise changed state information;

structuring the changed state information for optimized delivery over a wireless communications network;

delivering the changed state information to the application server over the wireless communications network; and

updating the global state information based on the changed state information received from each of the mobile client devices.

21. The method of Claim 20, further comprising the step of synchronizing the time of the changed state information relative to the global state information.

22. The method of Claim 21, further comprising the steps of:

structuring the updated global state information for optimized delivery over the wireless communications network; and

delivering the updated global state information to each of the mobile client devices over the wireless communications network.

23. The method of Claim 20, wherein said step of structuring the changed state information further comprises the steps of:

determining an initial set of instructions for describing the changed state information based on at least one system parameter; and

mapping at least one degree of freedom associated with the interactive application to the initial set of instructions.

24. The method of Claim 23, further comprising the step of minimizing the number of degrees of freedom to achieve an efficient configuration of the changed state information.

25. The method of Claim 23, wherein the at least one system parameter is selected from the group consisting of: the characteristics of the one or more mobile client devices, the characteristics of the interactive application, preferences of the one or more users, and control protocols relative to the wireless communications network and the one or more mobile client devices.

26. The method of Claim 22, wherein said step of structuring the updated global state information further comprises the steps of:

determining an initial set of instructions for describing the updated global state information based on at least one system parameter; and

mapping at least one degree of freedom associated with the interactive application to the initial set of instructions.

27. The method of Claim 26, further comprising the step of minimizing the number of degrees of freedom to achieve an efficient configuration of the updated global state information.

28. The method of Claim 22, wherein said step of delivering the updated global state information further comprises the step of managing the synchronization of the updated global state information delivered to each of the mobile client devices with the local state information.

29. The method of Claim 28, wherein said step of managing the synchronization further comprises the steps of:

determining the one or more users whose state of play determines the point of synchronization; and

placing each of the one or more users at the point of synchronization in the interactive application session.

30. A method for managing the transfer of state information for an interactive application between at least one mobile client device and a mobile game server over a telecommunications network, comprising:

structuring the state information for optimized delivery over the telecommunications network; and

transferring the state information over the telecommunications network.

31. The method of Claim 30, wherein said step of structuring the state information further comprises the steps of:

determining an initial set of instructions necessary to render the state information over the telecommunications;

minimizing the initial set of instructions to achieve an efficient configuration of the state information; and

mapping degrees of freedom to the minimized set of instructions.

32. The method of Claim 30, wherein said step of structuring the state information further comprises the steps of:

- determining an initial set of instructions for describing the state information;
- mapping at least one degree of freedom associated with the interactive application to the initial set of instructions; and
- minimizing the number of degrees of freedom to achieve an efficient configuration of the state information.

33. The method of Claim 30, wherein the telecommunications network comprises a wireless communications network.

34. A method for managing the transfer of state information for an interactive application between at least one mobile client device maintaining local state of the interactive application information (local state information) and an interactive application server maintaining global state of the interactive application information (global state information), the method comprising the steps of:

- determining synchronization information for synchronizing first global state information corresponding to the application server and first local state information corresponding to the at least one mobile client device;
- communicating the synchronization information to the at least one mobile client device;
- determining second local state information of the at least one mobile client device;
- comparing the first local state information to the second local state information to determine changes in the local state information;
- determining degrees of freedom corresponding to the changed local state information of the at least one mobile client device;
- communicating to the interactive application server the degrees of freedom information corresponding to the changed local state information;

determining second global state information based on the changed local state information received from the at least one mobile client device; and

communicating the second global state information to the at least one mobile client device to synchronize the second global state information corresponding to the application server and the second local state information corresponding to the at least one mobile client device.

11. A system, comprising:
a processor;
a memory; and
a network interface;
wherein the processor is configured to:
receive, from a first mobile client device, first local state information;
determine, based on the first local state information, first global state information;
communicate the first global state information to a second mobile client device;
receive, from the second mobile client device, second local state information;
determine, based on the second local state information, second global state information;
communicate the second global state information to the first mobile client device;
and
synchronize the first global state information and the second global state information.